

PUBLIC MEETING AGENDA

January 31, 2003

03-1-1 Public Meeting to Consider a Health Update

03-1-2 Public Meeting to Consider Research Proposals

03-1-3 Public Meeting to Consider a Summary of the Air Resources Board's 2003 Regulatory and Non-Regulatory Rulemaking Calendar 03-1-4 Public Meeting to Consider Policies and Actions for Environmental Justice: January 2003

03-1-5 Public Meeting to Update the Board on the Status of California's M17 SIP Strategy to Reduce Emissions from On-Road Heavy-Duty Diesel Vehicles In-Use

03-1-6 Public Meeting to Consider Appointments to the Research Screening Committee

Includes AcrobatTM ReaderTM

PC and Mac



ELECTRONIC BOARD BOOK

California Environmental Protection Agency Air Resources Board

PUBLIC MEETING AGENDA

LOCATION:

California Environmental Protection Agency Air Resources Board Central Valley Auditorium, Second Floor 1001 I Street Sacramento, CA 95814

This facility is accessible by public transit. For transit information, call: (916) 321-BUSS, website www.sacrt.com (This facility is accessible to persons with disabilities.)

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January 31, 2003 9:00 a.m.

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CONTACT CLERK OF THE BOARD, 1001 | Street, 23rd Floor, Sacramento, CA 95814

(916) 322-5594

FAX: (916) 322-3928

ARB Homepage: www.arb.ca.gov

To submit written comments on an agenda item in advance of the meeting.

To request, in advance of the meeting, to be placed on the list to testify on an agenda item.

To request special accommodations for those persons with disabilities (at least 7 days prior to the meeting date please).

For persons with a hearing or speech impairment, please use our telephone device for the deaf TDD: (916) 324-9531 or (800) 700-8326.

SMOKING NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

California Environmental Protection Agency

O Air Resources Board

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January 31, 2003 9:00 a.m.

03-1-1 Public Meeting to Consider a Health Update

Staff will discuss the results of the studies that have linked ultrafine particulate pollution with adverse human health effects.

03-1-2 Public Meeting to Consider Research Proposals

Staff will present the following research proposals for Board approval:

Proposal No. 2524-227, entitled "Global Radiative Effect of Particulate Black Carbon," submitted by the California Institute of Technology for a total amount not to exceed \$164,592.

Proposal No. 2525-227, entitled "Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles," submitted by the University of California, Davis, for a total amount not to exceed \$114,907.

O3-1-3 Public Meeting to Consider a Summer of the Air Resources Board's 2003 Regulatory and Non-Regulatory Rulemaking Calendar

Staff will present the proposed rulemaking calendar for 2003 and identify other reports, projects and proposals that will be brought to the Board through the end of the year.

03-1-4 Public Meeting to Consider Policies and Actions for Environmental Justice: January 2003

The staff will provide the Board with a brief overview of the status of the environmental justice program and discuss priorities for 2003.

(Agenda continued on next page)

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SMOKING NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

03-1-5 Public Meeting to Update the Board on the Status of California's M17 SIP Strategy to Reduce Emissions from On-Road Heavy-Duty Diesel Vehicles In-Use

Staff will update the Board on the status of California's M17 SIP Strategy to reduce emissions from on-road heavyduty diesel vehicles in-use.

03-1-6 Public Meeting to Consider Appointments to the Research Screening Committee



Staff will recommend appointments to the Board's Research Screening Committee. The committee reviews and recommends air pollution research projects to the Board.

Closed Session to Consider Personnel Matters Under Government Code Section 11126 (a)

Health and Safety Code Section 39515 (a) provides that "the state board shall appoint an executive officer who shall serve at the pleasure of the state board." The Board will hold a closed session as authorized by Government Code Section 11126 (a) to consider the appointment of a new Executive Officer.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of five minutes to ensure that everyone has a chance to speak.

THE AGENDA ITEMS LISTED ABOVE MAY BE CONSIDERED IN A DIFFERENT ORDER AT THE BOARD MEETING.

SUMMARY OF BOARD ITEM

ITEM # 03-1-1: Health Update

STAFF RECOMMENDATION: Informational Item

DISCUSSION: Staff will update the Board on ultrafine particulate

matter exposure and health effects

SUMMARY AND IMPACTS: The health implications of exposure to ultrafine

particulate matter (PM)—a sub-fraction of PM10 and PM2.5—is of considerable interest from a public health standpoint. Due to their small size and large

surface area per unit mass, ultrafine particles possess unique chemical and physical

characteristics, including an enhanced ability to

penetrate deeply into the lungs and circulatory system. The health update this month will focus on presenting a clear definition of ultrafine PM and it's potential significance as an air pollutant from a public health standpoint. In addition, the issue of

complexity of exposure to ultrafine PM will be

described and briefly discussed. Finally, the update will summarize key points from recent health-related studies on ultrafine PM, including relevant ARB-sponsored projects, such as the Children's Health Study and particle research conducted at the

Southern California Particle Center and Supersite.

PROPOSED

State of California AIR RESOURCES BOARD

Resolution 03-1

January 31, 2003

Agenda Item No.: 03-1-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2524-227, entitled "Global Radiative Effect of Particulate Black Carbon," has been submitted by the California Institute of Technology.

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2524-227, entitled "Global Radiative Effect of Particulate Black Carbon," submitted by the California Institute of Technology, for a total amount not to exceed \$164,592.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 2524-227, entitled "Global Radiative Effect of Particulate Black Carbon," submitted by the California Institute of Technology, for a total amount not to exceed \$164,592.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed \$164,592.

ATTACHMENT A

"Global Radiative Effect of Particulate Black Carbon"

Background

Assembly Bill 1493 requires the Air Resources Board to develop regulations that achieve the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other non-commercial vehicles. While carbon dioxide (CO₂) is the predominant greenhouse gas, black carbon particles also exert a climatic warming influence; a relevant question is the relative radiative forcing potentials of CO₂ and black carbon.

Motor vehicles emit a significant amount of fine organic carbon and black carbon particles. Recent studies suggest a significant climatic effect from black carbon particles, released in part from diesel and gasoline engines. Black carbon particles exert a warming effect in the atmosphere similar to that of greenhouse gases. It should be noted that inhaled black carbon (soot) particles have been implicated in human health effects. Therefore, any strategy aimed at the reduction of black carbon emissions because of their global warming potential will have the additional desirable consequence of removing from the air particulate matter (PM) deemed injurious to human health.

Objective

The goal of this project is to provide the Air Resources Board with state-of-the-science global radiative forcing estimates for black carbon and other particles.

Methods

Climate simulations will be performed using the NASA Goddard Institute of Space Studies (GISS) General Circulation Model. This research project will produce global average radiative forcing estimates for black carbon. These estimates, both at the top of the atmosphere and at the surface, will be obtained over 25-year intervals for 2000, 2025, 2050, 2075, 2100, based on Intergovernmental Panel on Climate Change estimates of emissions over the next century. The radiative forcing estimates will include both direct and indirect radiative forcing contributions.

Expected Results

The investigator will calculate an overall radiative forcing for all PM and attempt to estimate the fraction that might be attributable to black carbon. The product of this research program will be radiative forcing values for black carbon and other PM that can be compared with those for greenhouse gases, so that the relative effects on radiative forcing can be estimated by the ARB for each kilogram of black carbon emitted in California. Results of the project will be summarized in a Final Report to the ARB.

Significance to the Board

Quantitative understanding of the absorbing particles' role in climate forcing is required to accurately evaluate the radiative forcing impacts of PM emissions. This research

project will provide an improved estimate of the climate change impacts of PM so that ARB's regulations could better represent the combined impacts of PM and greenhouse gases from passenger vehicles on global climate change.

Contractor:

California Institute of Technology

Contract Period:

24 months

Principal Investigator (PI):

Professor John H. Seinfeld

Contract Amount:

\$164,592

Cofunding:

None

Basis for Indirect Cost Rate:

The indirect cost is a federally approved rate. Also, this is a global general circulation model calculation and data analysis study that needs state-of-the-art computer and support facilities to perform highly intensive computing and data storage necessary for this project and this is also included in the overhead rate.

Past Experience with this Principal Investigator:

Professor Seinfeld is a well-known authority on the subject of particle chemistry and thermodynamics, having developed the second- generation PM models and photochemical grid models currently used by ARB. Professor Seinfeld has consistently delivered an outstanding product at a reasonable cost in his previous contracts with ARB.

Prior Research Division Funding to the California Institute of Technology:

Year	2002	2001	2000
Funding	\$55,912	\$0	\$119,631

BUDGET SUMMARY

California Institute of Technology

Global Radiative Effect of Particulate Black Carbon

DIRE	CT COSTS AND BENEFITS		
1.	Labor and Employee Fringe Benefits ¹	\$101,600	
2.	Subcontractors	\$ 0	
3.	Equipment	\$ 0	
4.	Travel and Subsistence	\$ 0	
5.	Electronic Data Processing	\$ 0	
6.	Reproduction/Publication		
7.	Mail and Phone	\$ 0	
8.	Supplies	\$ 0 \$ 0 \$ 0 \$ 0	
9.	Analyses	\$ O·	
<u>10.</u>	Miscellaneous	\$0	
	Total Direct Costs	\$101,600	
	rotal Birott Oooto	$\frac{\psi 101,000}{}$	
INDI	RECT COSTS		
INDI 1.	RECT COSTS Overhead ²	\$ 62,992	
	Overhead ²	\$ 62,992 \$ 0	
1.			
1. 2.	Overhead ² General and Administrative Expenses	\$ 0 \$ 0	
1. 2. 3.	Overhead ² General and Administrative Expenses Other Indirect Costs	\$ 0 \$ 0	
1. 2. 3.	Overhead ² General and Administrative Expenses Other Indirect Costs	\$ 0 \$ 0	
1. 2. 3. 4.	Overhead ² General and Administrative Expenses Other Indirect Costs Fee or Profit	\$ 0 \$ 0 \$ 0	

¹ Labor and employee fringe benefits include the salary for two graduate research assistants that reflects 24 months of compensation. Consistent with past practice, Professor Seinfeld does not charge ARB for his time.

² The indirect cost is a federally approved rate. Also, this is a global general circulation model calculation and data analysis study that needs state-of-the-art computer and support facilities to perform highly intensive computing and data storage necessary for this project and this is also included in the overhead rate.

PROPOSED

State of California AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 03-2

January 31, 2003

Agenda Item No.: 03-1-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2525-227, entitled "Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles," has been submitted by the University of California, Davis;

WHEREAS, the Research Division staff have reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2525-227 entitled "Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles," submitted by the University of California, Davis, for a total amount not to exceed \$114,907.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 2525-227 entitled "Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles," submitted by the University of California, Davis, for a total amount not to exceed \$114,907.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein in an amount not to exceed \$114,907.

ATTACHMENT A

"Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles"

Background

Mobile source fuel combustion is one of the most prevalent sources of ultrafine particulate air pollution in California. A preliminary inventory of ultrafine particulate matter for southern California estimates that mobile sources account for more than half of the ultrafine particulate matter emissions in that region. Tests that measured the size distribution of particles released from light duty vehicles have detected ultrafine particles in the exhaust. A sample of ultrafine particles released from light duty vehicles must be collected so that chemical tracer compounds can be identified that will help to quantify the contribution that light duty vehicles make to the overall atmospheric burden of ultrafine particles. A roadside study is also needed to examine how ultrafine particles are transformed after release to the atmosphere in the polluted roadway environment.

Objective

The objectives of this project augmentation are to collect cascade impactor and filter samples from on-road light duty vehicles at the ARB's Haagen-Smit Laboratory in El Monte, and to collect samples of airborne particulate matter at a roadside location in southern California. Particle samples collected during the source sampling study and ambient field monitoring will be analyzed and a new ultrafine particle source library will be developed.

Methods

In this study, the investigators propose to enhance a current ARB research contract for source apportionment of ultrafine particulate matter by carrying out a source test for light duty vehicles (LDV). The investigators will construct a dilution system for this project, and the ARB's Haagen-Smit Laboratory in El Monte will provide a unique opportunity to conduct LDV source sampling. Airborne particle samples collected with filter-based samplers and Micro Orifice Uniform Deposit Impactors will be analyzed for unique chemical tracers that can be used in a source apportionment analysis. In the second phase of the enhanced project, the investigators propose to carry out a roadside test to study the evolution of ultrafine particulate matter in the polluted roadside environment. These transformations must be studied so that the signature for ultrafine particulate matter released from mobile sources can be recognized at receptor sites far from roadways.

Expected Results

As a part of the parent research project, source profiles collected during the proposed research augmentation will be used to support source apportionment studies of ultrafine particulate matter in California. Three major parts of research include:

 characterization of ultrafine particles at the source, 2) characterization of fine particles collected during 1997 Southern California Air Quality Study and ultrafine particles collected during California Regional PM10/PM2.5 Air Quality Study. and 3) source apportionment analysis for collected fine and ultrafine particles. Source apportionment results will be compared with results from similar studies of fine particulate matter (PM) in southern California including the 1982 and 1993 studies made by Professor Cass's research group. Trends in fine PM sources among the 1982, 1993, and 1997 samples will provide a measure of the effectiveness of fine PM control strategies over this period. Finally, the results of all parts of the project will be documented as a technical report submitted to ARB and as technical papers submitted to peer-reviewed journals.

Significance to the Board

This research project will enhance the current ARB research contract for source apportionment of ultrafine particulate matter by carrying out a source test for light duty vehicles. By making these measurements more quantitative, more detailed, and more frequent, source apportionment studies can be conducted to identify the contribution that light duty vehicles make to overall airborne particle concentrations.

Statistical source apportionment techniques proposed in this study can provide valuable insight about the contribution that different sources make to airborne particle concentrations. Information of this type plays a vital role in the design of emissions control programs to reduce airborne particle concentrations that are suspected of causing adverse health effects. Very little is currently known about the contribution of different urban sources to airborne ultrafine particle concentrations. The sources of atmospheric ultrafine particles should also be understood in preparation for the design of abatement strategies.

Contractor:

University of California, Davis

Contract Period:

18 months

Principal Investigator (PI):

Dr. Michael Kleeman

Contract Amount:

\$114,907

Co-funding:

No co-funding but this project has cost savings through a cooperative effort with an ongoing major diesel study, i.e., CRC Project E55/59.

Basis for Indirect Cost Rate:

The Indirect Cost Rate is 10% as previously agreed upon by the State of California and the University of California.

Past Experience with this Principal Investigator:

Dr. Kleeman has extensive previous experience in the construction of air quality models that describe aerosol processes and in the measurement of airborne particulate matter in the ambient atmosphere and his work is well-published. In addition, staff has found Dr. Kleeman very willing to put extra effort into his projects.

Prior Research Division Funding to the University of California, Davis:

Year	2002	2001	2000
Funding	\$591,094	\$267,986	\$606,286

BUDGET SUMMARY

University of California, Davis

Source Apportionment of Fine and Ultrafine Particles in California: Tailpipe and Roadside Measurement of Ultrafine Particles

DIRE	CT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits ¹	\$	43,525	
2.	Subcontractors	\$	0	
3.	Equipment ²	\$ \$	5,050	
4.	Travel and Subsistence ³	\$	15,650	
5.	Electronic Data Processing	\$	0	
6.	Reproduction/Publication	\$ \$ \$ \$ \$ \$	0	
7.	Mail and Phone	\$	0	
8.	Supplies ⁴	\$	3,145	
9.	Analyses ⁵	\$	36,550	
10.	Miscellaneous ⁶	\$	1,000	
	Total Direct Costs		\$104	,920
INDIRECT COSTS				
1.	Overhead	\$	9,987	
2.	General and Administrative Expenses		. 0	
3.	Other Indirect Costs	\$ \$ \$	0	
4.	Fee or Profit	<u>\$</u>	0	
	Total Indirect Costs		<u>\$9</u>	<u>,987</u>
TOTAL PROJECT COSTS \$114,907				

Labor and employee fringe benefits include the salary for Dr. Kleeman that reflects 1.5 months of compensation for an Assistant Professor at the University of California at Davis. The salary also listed for Graduate Student Research Assistant reflects 6 months of compensation. The graduate student will weigh sampling media, bake foil / quartz sampling media, clean sampling equipment, set up sampling equipment during testing, dismantle sampling equipment after testing, extract filters for chemical analysis, perform chemical analysis using IC, ICP-MS, GC-MS, and analyze data. The salary listed for Undergraduate Research Assistant reflects 9 months of compensation to assist the Graduate Student Research Assistant in his/her duties. Rates for University of California at Davis personnel reflect the standard fringe benefit rates of 12.7% for faculty, 4.3% for research assistants, and 1.3% for undergraduate students.

² The UCD investigator will construct a dilution system for this project.

⁵ Sample analyses include:

Soluble Ion analysis (UC Davis)

Species:

Na+, NH4+, K+, Cl-, NO3-, SO4=, PO4=

Cost: \$5/sample

Trace inorganic analysis (UC Davis)

Species:

Na. Mg. Al, Si, P. S. Cl. K. Ca. Ba. Ti. V. Cr.

Mn, Fe, Co, Ni, Cu, Zz, Ga, Au, Hg, As, Pb,

Se, Br, Rb, Sr, Y, Zr, Cd, Ag, others...

Cost: \$40/sample

Carbon Analysis (UC Davis)

Species:

elemental carbon, organic carbon

Cost: \$5/sample

Trace Organics Analysis (University of Colorado)

Species:

organic tracers

Cost: \$200/sample

Extended costs for 17 samples

³ The travel portion of the budget will provide funds for sampling events and sample analysis at the University of Colorado. It is anticipated that two researchers will be in the field for approximately 22.5 days. Van rental covers the expense of moving equipment from UC Davis to the sampling site and back, as well as transportation at the sampling site. Airfare for Dr. Kleeman covers the expense for the PI to travel to the sampling site during the experiments (start and end of sampling event). The cell phone charges are included for convenience and safety of the graduate student during the sample collection phase.

⁴ Supplies include items needed to collect source samples (filter media, etc) in addition to items needed for trace organics analysis (solvents, standards, etc).

⁶ Additional van rental and cleaning for use of dilution system.

SUMMARY OF BOARD ITEM

ITEM # 03-1-4: Status Report on the Implementation of

Environmental Justice Policies and Actions

STAFF RECOMMENDATION: Informational Item

> DISCUSSION: On December 13, 2001, the Board approved the

Environmental Justice Policies and Actions

(Policies). These Policies established a framework for incorporating environmental justice into the ARB's programs consistent with the directives of State law. Associated with each of the Policies are a

number of action items.

Since the last update to the Board in June 2002, the

ARB staff has moved forward with the

implementation of the Policies. The major focus over the last six months was the Complaint Resolution Protocol and the Public Participation

Guidebook. These items were specifically requested by environmental justice community groups to promote the timely resolution of air

pollution complaints and to aid community members in more fully participating in air pollution decisionmaking. The focus of the current year is to develop protocols for modeling air pollution impacts at the neighborhood level and to provide local agencies

with information to help them incorporate

environmental justice into local land-use decision-

making process.

SUMMARY AND IMPACTS: This item will update the Board on the staff

> accomplishments and ongoing activities related to the Environmental Justice Policies and Actions during the last six months, and present the

anticipated activities for the next year.

SUMMARY OF BOARD ITEM

ITEM # 03-1-5: Public Meet

Public Meeting to Update the Board on the Status of California's M17 SIP Strategy to Reduce Emissions from On-Road Heavy-Duty Diesel Vehicles In-Use

STAFF RECOMMENDATION:

This item is to update the Board on the status of California's M17 SIP Strategy to reduce emissions from on-road heavy-duty diesel vehicles in-use. Thus, no Board action is necessary.

DISCUSSION:

Measure M17, of the 1994 Ozone State Implementation Plan, calls for exhaust emission reductions from heavy-duty diesel engines (HDDE) in order to attain the federal ozone ambient air quality standard.

Currently, with the exception of testing for exhaust opacity, California does not have an inspection and maintenance program for heavy-duty diesel vehicles similar to the light-duty Smog Check program. ARB staff have been procuring, testing and repairing heavy-duty diesel trucks to determine if significant NOx reductions can be achieved from such a program. The results of the testing done to date and the conclusions that can be drawn will be presented by staff.

Also, there is no effective in-use program to ensure compliance with the HDDE emission standards throughout the useful life of the engine. ARB's existing in-use compliance regulations call for testing diesel engines on an engine dynamometer. Because of costs and other issues, very few heavy-duty diesel engines have been tested in-use so far. In 2000, the Board adopted an additional test procedure applicable to 2005 and later MY HDDEs that allows testing the engine on both a chassis dynamometer or with an on-board measurement system at a substantial cost savings. A manufacturer-run HDDE in-use compliance program would make use of these potential cost savings while providing ARB with more and better data than it could expect to obtain on its own.

In addition, staff will be developing heavy-duty onboard diagnostic (HD-OBD) requirements for heavyduty vehicles. The adopted 2007 HDDE emission standards will require the use of exhaust aftertreatment systems. Adopting HD-OBD requirements for heavy-duty vehicles will ensure that emission control systems operate throughout their useful life. When a malfunction occurs, the OBD system detects the malfunction, alerts the driver by illuminating a dashboard warning light, and stores diagnostic information that can be retrieved by repair technicians to identify the likely cause of the malfunction. OBD systems have been required on all gasoline and light and medium duty diesel vehicles since the 1996 model year.

SUMMARY AND IMPACTS:

Staff has been collecting and analyzing data to determine the feasibility of developing a heavy-duty diesel inspection and maintenance program targeting NOx reductions, and the results will be shared with the Board. If NOx emission benefits can be achieved by this program, the staff will develop proposed regulations and a timeline for implementation.

A manufacturer-run HDDE in-use compliance program is being developed in cooperation with the engine manufacturers. Staff will propose regulations that will implement the program as a pilot program in California in 2005 and 2006. The pilot program will be mainly for generating data and gaining experience of testing HDDE on road with on-board measurement systems. No enforcement action will be taken by the ARB solely on the basis of pilot program data. A fully enforceable manufacturer-run in-use compliance program would begin nationally in 2007.

Also, ARB staff is developing heavy-duty on-board diagnostic (HD-OBD) requirements to monitor emission control systems' effectiveness. The HD-OBD system will ensure that emission control system malfunctions are detected as they occur, thereby allowing prompt repair and fewer emissions throughout the life of the vehicle. The HD-OBD requirements will be proposed to the Board later this year with implementation to begin with the 2007 model year engines.

NOTICE OF PUBLIC MEETING TO UPDATE THE BOARD ON THE STATUS OF EFFORTS TO REDUCE IN-USE NOx EMISSIONS FROM ON-ROAD HEAVY-DUTY DIESEL VEHICLES (Element M17 of the California SIP)

The Air Resources Board (the Board or ARB) will conduct a public meeting at the time and place noted below to consider ARB staff's update on the status of efforts to reduce in-use NOx emissions from on-road heavy-duty diesel vehicles. This item addresses element M17 of the California State Implementation Plan (SIP), is informational only, and no regulatory action will be taken.

DATE:

January 31, 2003

TIME:

9:00 a.m.

PLACE:

Air Resources Board

Central Valley Auditorium

1001 | Street

Sacramento, California 95814

This facility is accessible to persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board at (916) 322-5594 by January 21, 2003, to ensure accommodation. Persons with hearing or speech impairments can contact us by using our Telephone Device for the Deaf (TDD) at (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

Background

Reductions in mobile source emissions are essential to the attainment of the federal and state ozone air quality standards. Diesel engines used in heavy-duty on-road vehicles and off-road equipment are the largest source of ozone-forming nitrogen oxide (NOx) emissions. The 1994 State Implementation Plan (SIP) for ozone identified several approaches to reduce NOx and other emissions from heavy-duty on-road diesel vehicles. One approach is to adopt more stringent emission standards for new heavy-duty diesel engines used in on-road vehicles. Since approval of the SIP, the Board has twice adopted more stringent emission standards which will result in a 50 percent reduction in NOx emissions of 2004 models, and another 90 percent reduction in both NOx and particulate matter (PM) emissions of 2007 models.

Another approach is to reduce emissions from the fleet of heavy-duty diesel vehicles already on the road. On-road vehicles may have elevated emissions due to malmaintenance, defective parts or an emission control system design which is not durable. One SIP measure, M17, called for developing a new, in-use program to address the excess emissions of on-road heavy-duty diesel vehicles. This program could include a new field test to screen heavy-duty on-road vehicles that have high NOx emissions, and require their repair. It could also include a testing and recall program similar to that currently in place for light-duty vehicles. Such a program could identify

engines whose emission control systems lack in-use durability, and require recall and installation of more durable parts. The program could also require the installation of onboard diagnostics (OBD) on new heavy-duty diesel engines. OBD can identify individual emission control parts and systems that have failed or are not operating properly. In combination with other programs, repair of the defective parts or systems could be assured. Finally, ARB agreed to pursue financial incentives for advanced heavy-duty technologies capable of emissions below the required standards for new engines.

The program is to be adopted by the Board by January 2004, and is to achieve emission reductions of ten tons per day NOx, and one ton per day reactive organic gases (ROG), by 2010.

Summary of Presentation

Staff will present to the Board a progress report on efforts to develop a program to reduce in-use NOx emissions from on-road heavy-duty diesel vehicles. The elements of the program being evaluated are: 1) a field testing program to identify on-road heavy-duty diesel vehicles with excessive NOx emissions that would complement the current ARB program that inspects for visible smoke emissions; 2) an in-use compliance program that tests specific engine models to determine if their emission control devices and systems have remained effective during the vehicles' useful life; and 3) a regulatory requirement that new diesel engines used in heavy-duty on-road vehicles be equipped with an OBD system that provides a real time assessment of each emission control device or system and warns the operator when a defect or malfunction has occurred.

For more than a year, staff has been testing and repairing heavy-duty diesel trucks in an effort to determine whether significant NOx reductions can be achieved by adding a field test for NOx to the current smoke inspection program. The testing and evaluation is designed to quantify the excess NOx emissions from the current in-use fleet of heavy-duty diesel vehicles, determine if a field screening test can accurately identify the higher emitters, and assess the effectiveness and cost of emission-reducing repairs. Staff will present the results of the study and discuss the feasibility of implementing a field inspection program for NOx.

In March of 2002, ARB staff began working with the U.S. Environmental Protection Agency (EPA), Engine Manufacturers Association (EMA), and diesel engine manufacturers to develop a manufacturer-run, in-use compliance program. In this proposed program, the engine manufacturer would test engines of the same model to determine if they are in compliance with the emission standards to which they were designed. If high emissions and a defective design are identified, the manufacturer would recall all trucks using that engine, and modify them to comply with the emission standards. ARB may also test engines and order a recall if appropriate. Critical to this program are the Not To Exceed (NTE) test procedures previously adopted by the Board, which allow a simplified method of determining in-use compliance. The ARB and EPA staff, and EMA, are close to reaching concensus on how such a program could be implemented. We will be proposing regulations to implement this program later this year. The program would begin as a pilot in California for the 2005 and 2006 model years, and would become fully enforceable with the 2007 model year. U.S. EPA also intends to adopt this in-use compliance program effective with the 2007 models.

Staff is also developing a proposed regulation that would require new diesel engines used in heavy-duty trucks to be equipped with an OBD system, beginning with the 2007 models. OBD systems are comprised mostly of software in the on-board computer that monitors virtually all emission-related components for malfunctions. When a malfunction occurs, the OBD system alerts the driver by illuminating a dashboard warning light, and stores diagnostic information that can be retrieved by repair technicians to identify the likely cause of the malfunction. The OBD system can be used during field inspections to screen out those vehicles in need for repair. It can also be used to identify engines models with high failure rates of emission control parts, resulting in compliance testing and a possible recall. OBD systems have been required on all gasoline and light and medium duty diesel vehicles since the 1996 model year, and have proved to be highly effective. The ARB staff plans to bring an OBD regulation for heavy-duty vehicles to the Board for consideration later this year.

Availability of Documents and Agency Contact Person

Copies of the presentation prepared by staff may be obtained from the Board's Public Information Office, 1001 "I" Street, 1st Floor, Environmental Services Center, Sacramento, CA 95814, (916) 322-2990. The presentation may also be obtained electronically from the ARB internet site http://www.arb.ca.gov/msprog/onroadhd/hdiut.htm

To obtain these documents in an alternate format, please contact the Air Resources Board ADA Coordinator at (916) 323-4916, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

Further inquiries regarding this matter should be directed to Mr. Stephan Lemieux, Manager, On-Road Heavy-Duty Diesel Section, at (626) 450-6162, or slemieux@arb.ca.gov, or Mr. Don Chernich, Manager, Heavy-Duty Diesel Inspection and Maintenance Development Section, at (916) 322-7620, or <a href="mailto:document-development-

Submittal of Comments

Interested members of the public may also present comments orally or in writing at the meeting, and in writing or by e-mail before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, January 30, 2003** and addressed to the following:

Postal mail is to be sent to:

Clerk of the Board Air Resources Board 1001 "I" Street, 23rd Floor Sacramento, California 95814

Electronic mail is to be sent to: <u>m17hdde@listserv.arb.ca.gov</u> and received at the ARB **no later than 12:00 noon, January 30, 2003.**

Facsimile submissions are to be transmitted to the Clerk of the Board at

22 (916) 322-3928 and received at the ARB **no later than 12:00 noon**, **January 30, 2003**.

The Board requests, but does not require, 30 copies of any written submission. Also, the ARB requests that written and e-mail statements be filed at least ten days before the meeting so that ARB staff and Board members have additional time to fully consider each comment.

No amendments to the current on-road regulations discussed in this notice will be considered or adopted by the Board at this meeting as part of this agenda item.

CALIFORNIA AIR RESOURCES BOARD

Michael P. Kenny Executive Officer

Date: January 14, 2003

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.arb.ca.gov.